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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/674,396	10/01/2003	Hiroshi Tanabe	Q77312	4416

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SUGHRUE, MION, ZINN, MACPEAK & SEAS
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Washington, DC 20037-3202

EXAMINER

MOORE, KARLA A

ART UNIT	PAPER NUMBER
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1763

DATE MAILED: 08/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/674,396

Applicant(s)

TANABE ET AL.

Examiner

Karla Moore

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 June 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 08/886,331.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –
(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1 and 6 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 5,861,337 to Zhang et al. (1)

3. Zhang et al. (1) disclose a semiconductor manufacturing apparatus as claimed in Figure 3 and comprising: a chamber capable of silicon formation (13), a chamber capable of insulating thin film formation (15), a chamber capable of laser irradiation (16), a chamber capable of hydrogen annealing (14) and transportation means (17 and 18) for transporting a substrate (19) having planar dimensions of a substrate width by a substrate length, wherein each of said chambers and said transportation means are constituted such that said substrate on which a semiconductor device is formed can be transported among said chambers without exposure of said substrate to the air; and wherein said laser irradiation chamber includes an irradiation system (26, outside chamber) and a vacuum chamber (inside 16) for accommodating the substrate, wherein the vacuum chamber has planar dimensions of a chamber length and a chamber width wherein at least one of the chamber length and chamber width is less than twice a respective length or width of the substrate (see Figure 3). The vacuum chamber has a window (27).

4. With respect to claim 6, which is drawn solely to a processing step of a processing method, the courts have ruled a claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987). The courts have further ruled that expressions relating the apparatus to

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contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim. Ex parte Thibault, 164 USPQ 666, 667 (Bd. App. 1969). In the instant case, the prior art teaches each of the structural limitations, but teaches a method using different contents/processing material.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 2-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang et al. (1) as applied to claims 1 and 6 in view of U.S. Patent No. 4,529,617 to Chenevas-Paule et al.

7. Zhang et al. (1) disclose a semiconductor manufacturing apparatus substantially as claimed and as described above.

8. However, Zhang et al. (1) fail to teach the substrate held in a stationary position during laser irradiation in said laser irradiation chamber, wherein the irradiation system includes a laser and an optical system for shaping the laser beam, wherein a part of said optical system is movably disposed within said vacuum chamber such that said laser beam can be irradiated onto substantially the entire planar area of said substrate.

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9. Chenevas-Paule et al. teach that any of a substrate, radiation source/laser or deflection mirrors/ an optical system positioned in the vacuum chamber (Figure 1, 12 and 14) can be displaced and the other two components held stationary for the purpose of carrying out a scan of part or all of a substrate surface (Figures 1 and 2; column 3, rows 23-34 and column 4 rows 11-14).

10. It would have been obvious to one of ordinary skill in the art at the time the Applicant's application was made to have provided a displaceable optical system/deflection mirrors and a stationary substrate in Zhang et al. (1) in order to carry out a scan of part or all of a substrate surface as taught by Chenevas-Paule et al.

11. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang et al. (1) as applied to claims 1 and 6 in view of U.S. Patent No. 5,424,244 to Zhang et al. (2).

12. Zhang et al. (1) disclose a semiconductor manufacturing apparatus substantially as claimed and as described above.

13. However, Zhang et al. (1) fail to disclose the specific dimensions of the window as claimed (i.e. corresponding to the area of the substrate).

14. Zhang et al. (2) teach a window sized to correspond to the dimensions of a substrate for the purpose of avoiding locating a movable substrate holder in the processing chamber, thus making the chamber free from the associated mechanical parts and dust (Figure 8A; column 14, rows 19-49).

15. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a window sized to correspond to the dimensions of the substrate Zhang et al. (1) in order to avoid locating a movable substrate holder in a processing chamber, thus making the chamber free from the associated mechanical parts and dust as taught by Zhang et al. (2).

Response to Arguments

16. Applicant's arguments filed 9 June 2005 have been fully considered but they are not persuasive. Zhang et al. discloses a chamber *capable* of hydrogen annealing. Examiner does not submit that Zhang discloses a comparable processing method as the claimed invention, and need not, as the pending

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claims are drawn to an apparatus, not a method. What Zhang et al. discloses is a chamber capable of annealing and that would also be capable of performing a hydrogen annealing process, if that were the desired/intended method to be conducted in the chamber and hydrogen was supplied as a processing material. Examiner notes that the courts have ruled that a claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987). The courts have further ruled that expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim. Ex parte Thibault, 164 USPQ 666, 667 (Bd. App. 1969). Further, regardless of Applicant's argument addressed above, which depend on an intended use of the claimed apparatus, there is another issue. Examiner recognizes that the prior art chamber in question is taught as being useful for annealing to treat a film containing hydrogen, rather than a chamber performing a process using hydrogen as a processing gas as performed in Applicant's intended method. However, there is no rule that a chamber be referred to using the name of a processing gas to be used, rather than being referred to based on an object to be worked upon. When referring to the chamber as a "hydrogen annealing" chamber, either is a possibility.

17. With respect to Applicant's argument that Zhang fails to teach each of said processing chambers and transportation means are constituted such that said substrate on which a semiconductor device is formed can be transported among said chambers without exposure of said substrate to the air, Examiner directs Applicant's attention to column 7, rows 33-45, where this is clearly disclosed.

Conclusion

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. 4591821 teaches annealing in inert, reducing and dry oxidizing atmospheres.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karla Moore whose telephone number is 571.272.1440. The examiner can normally be reached on Monday-Friday, 8:30am-5:30pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on 571.272.1439. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



km
20 August 2005



Parviz Hassanzadeh
Supervisory Patent Examiner
Art Unit 1763